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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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James D. Thornton

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10/27/2006

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EXAMINER

ZHEN, LI B

ART UNIT

PAPER NUMBER

2194

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/740,076

Applicant(s)

THORNTON ET AL.

Examiner

Li B. Zhen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-12 and 17-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4-8 and 24-30 is/are allowed.
- 6) ☒ Claim(s) 9-12 and 17-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 1, 2, 4 – 12 and 17 – 30 are pending in the current application.

#### ***Allowable Subject Matter***

2. Claims 1, 2, 4 – 8 and 24 – 30 are allowed.
3. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not expressly teach or render obvious the invention as recited in independent claims 1 and 24.

The prior art teaches a job management apparatus [col. 3, lines 42 – 58 of Doyle] for use in a batch job execution system [col. 5, line 63 – col. 6, line 17 of Doyle], a plurality of service providers [col. 4, lines 10 – 29 of Doyle] in communication with the job management apparatus [col. 4, lines 10 – 29 of Doyle], receiving a batch job from a client [col. 3, lines 5 – 25 of Doyle], extracting one or more task from the batch job [col. 3, lines 5 – 25 of Doyle], receives a request work signal from each of the plurality of service providers that is available to perform work for the batch job execution system [col. 6, lines 17 – 30 of Doyle], each request work signal informing the assigning part of one or more function or service that the service provider can perform [col. 3, line 58 – col. 4, line 12 of Doyle], determining the capabilities of distributed devices [col. 4, lines 23 – 47 of Hubbard], delegating each task to one of the service providers that can perform the function or service required to perform the task [col. 6, lines 17 – 30 of Doyle and col. 15, lines 38 – 55 of Hubbard], and sending an idle assignment signal to

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each service provider [col. 4, lines 10 – 29 of Doyle]. However, the prior art does not teach an assigning part sending a work available signal to each service provider that was previously sent the idle assignment signal but for which a task is available from the job management apparatus, to thereby inform each service provider that had stopped sending request work signals to the assigning part to thereafter send a work request signal when the service provider is available to perform work.

In addition, the prior art of record does not provide a basis of evidence for asserting a motivation that one of ordinary skill level in the art at the time the invention was made would have integrated or modified the batch job execution system with an assigning part sending a work available signal to each service provider that was previously sent the idle assignment signal but for which a task is available from the job management apparatus, to thereby inform each service provider that had stopped sending request work signals to the assigning part to thereafter send a work request signal when the service provider is available to perform work as recited in the context of independent claims 1 and 24.

### ***Response to Arguments***

4. Applicant's arguments filed 08/22/2006 regarding claims 9 and 17 have been fully considered but they are not persuasive. In response to the Non-Final Office Action dated 06/05/2006, applicant argues:

(1) Doyle appears to teach that a single computation module 14 is in communication with the master computer 5, and in communication with all of the available clients (not subsets of the clients). In other words, Doyle does not teach or

suggest multiple computation modules, each in communications with a subset of the client. [p. 13, line 23 – p. 14, line 7]; and

(2) Claim 17 also includes the step of "sending a work available signal to each service provider that was previously sent the idle assignment signal but for which a task is available from the job management apparatus." For similar reasons to those discussed above with regards to claim 1 and its dependent claims, Applicants assert that claim 17, and its dependent claims 18-23 are patentable over the applied reference.

As to argument (1), examiner respectfully disagrees and asserts that Doyle teaches multiple computation modules, each in communications with a subset of the client. Doyle teaches that the computation module could be executed on the client [col. 6, lines 45 – 55] or the server [col. 5, line 64 – col. 6, line 17]. When the computation module is executing on the client, the computation module is in communications with a subset of the clients [the client that the computation module is executing on]. It is also noted that every set is a subset of itself. Therefore, when the computation module is executing on the master, the computation module is in communications with a subset of clients. Under both interpretations, the combination of Doyle and Hubbard teaches all the limitations of claim 9.

In response to argument (2), examiner respectfully disagrees and submits that claim 17 is not similar to claim 1 because claim 17 only recite "sending a work available signal to each service provider that was previously sent the idle assignment signal but for which a task is available from the job management apparatus. Doyle teaches that when no work is available, the client is sent idle response [col. 4, lines 10 – 29] and

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when the client idle, it is implied that client will not send request work signal. Examiner respectfully submits that the available clients do not keep sending availability signals to the master control program. Doyle discloses that the master notifies client that work is available by selecting the client for work when work is available [col. 6, line 15-30].

Since the master will notify the client when work is available, there is no need for the clients to keep sending availability signals. In addition, examiner notes that when the master program of Doyle selects a client and sends commands and files to the client [col. 6, lines 15 – 30], the master program is sending a work available signal to the client (service provider). Thus, the combination of Doyle and Hubbard teach claim 17.

### ***Specification***

5. The applicant recites a co-pending application by its title [p.1, lines 15-19].

Please update the information by including U.S. application serial numbers or patent numbers.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 9 – 12 and 17 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,009,455 to Doyle in view of U.S. Patent No. 7,003,547 to Hubbard, both references cited in the previous office action.**

8. As to claim 9, Doyle teaches the invention substantially as claimed including a batch job execution system [calculate the number of computation segments in the job request; col. 5, line 63 – col. 6, line 17] for communicating with at least one client [client computers; col. 4, lines 10 – 29], comprising:

a job management apparatus [master computer 5, Fig. 2a; col. 3, lines 42 – 58] in communication with the clients [client computers; col. 4, lines 10 – 29] which receives a batch job from a client [A job request means 1 provides a calculation initiation signal 2 to an application-specific master program 6 running in a master computer 5; col. 3, lines 5 – 25], extracts a task from the batch job [application-specific master program is designed to partition the calculation indicated in the job request signal into multiple segments.; col. 3, lines 5 – 25], and assigns the task [application-specific master program is designed to partition the calculation indicated in the job request signal into multiple segments.; col. 3, lines 5 – 25];

a plurality of service providers [client computers; col. 4, lines 10 – 29] in communication with the job management apparatus which receive the assigned task [Each selected client is downloaded with the job request files 18 included in the segment group package 19 whose contents are based on the job request signal 40; col. 6, lines 17 – 30], perform the task [issues a command to the client control program 12 to execute the job computation module 14 with a compute parameter list 31; col. 6, lines 45 – 56], and return a result to the job management apparatus [After all group results 22 have been computed and the associated output files uploaded from the selected clients; col. 6, line 65 – col. 6, line 25]; and,

a plurality of provider managers [job computation module 14; col. 9, lines 23 – 40] in communication with the job management apparatus and in communication with a corresponding subset of the plurality of service providers which monitors the tasks being performed on the service providers and provides status information to the job management apparatus [After the CALCULATE script line is executed, subsequent SubmitterTick messages cause a job status message to be returned; col. 9, lines 23 – 40], wherein at least one of said subset of the plurality of service providers includes multiple service providers [client computers; col. 4, lines 10 – 29]. Although Doyle teaches the invention substantially, Doyle does not specifically disclose a job database in communication with the job management apparatus, which stores the batch job.

However, Hubbard teaches a job database in communication with the job management apparatus, which stores the batch job [workload database 308, Fig. 3A; col. 10, lines 45 – 66].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Doyle to incorporate the feature of a job database as taught by Hubbard because this identifies the capabilities of distributed devices connected together through a wide variety of communication systems and networks and provides capability-based incentives to aggregate these distributed device capabilities to accomplish processing, storage, broadcasting or any other desired project objective [col. 2, line 65 - col. 3, line 5 of Hubbard].



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9. As to claim 17, Doyle as modified teaches a method for preparing and executing a batch job by a batch job execution system [calculate the number of computation segments in the job request; col. 5, line 63 – col. 6, line 17 of Doyle], comprising the steps of:

submitting a batch job [A job request means 1 provides a calculation initiation signal 2 to an application-specific master program 6 running in a master computer 5; col. 3, lines 5 – 25 of Doyle] with processing parameters to a job management apparatus [compute parameter list 31; col. 8, lines 11 – 38 of Doyle];

storing the batch job in a job database [workload database 308, Fig. 3A; col. 10, lines 45 – 66 of Hubbard];

receiving a work request signal from each of a plurality of service providers that is available to perform work for the batch job execution system, each work request signal informing the job management apparatus of one or more function or service that the service provider can perform [primary function of the availability algorithm is to notify the master computer that the client is available... evaluate the existence and configuration of various predetermined resources on the client computer; col. 3, line 58 – col. 4, line 12 of Doyle];

determining whether the batch job execution system is able to process the batch job [qualification algorithm 45 in the master control program determines if an available client is a candidate to participate in a distributed computation; col. 4, lines 10 – 29 of Doyle];

extracting at least one task from the batch job [application-specific master program is designed to partition the calculation indicated in the job request signal into multiple segments.; col. 3, lines 5 – 25 of Doyle];

delegating each task to one of the service providers that can perform the function or service required to perform the task [Each selected client is controlled by sending commands and files 21 from the master control program to the client control program over the network. Each selected client is downloaded with the job request files 18 included in the segment group package 19 whose contents are based on the job request signal 40; col. 6, lines 17 – 30 of Doyle]; and

sending an idle assignment signal to each service provider from which the request work signal is received but for which there is not a task available from the job management apparatus [If the master control program has no work for the available client, an optional idle response (not shown) may be sent; col. 4, lines 10 – 29 of Doyle], the idle assignment signal informing the service provider to not send further request work signals to the job management apparatus until the service provider receives a work available signal from the job management apparatus [Each selected client is controlled by sending commands and files 21 from the master control program to the client control program over the network; col. 6, lines 15 – 30 of Doyle], thereby freeing up resources of each service provider for which there is not a task available from the job management apparatus [examiner notes that the client in response to the idle response from the master will not have work to perform; therefore, it will free up the resources of the client] to perform other tasks not delegated by the job management apparatus

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[workloads 130 and the results 132, or other tasks of the server systems 104, may be processed and handled by out-sourced host systems 340; col. 12, lines 33 – 50 of Hubbard]; and

sending a work available signal to each server provider that was previously sent the idle assignment signal but for which a task is available from the job management apparatus [Each selected client is controlled by sending commands and files 21 from the master control program to the client control program over the network; col. 6, lines 15 – 30 of Doyle].

10. As to claim 10, Doyle as modified teaches the provider manager in response to a request to increase capacity from the job management apparatus assigns additional service providers to receive tasks from the job management apparatus [col. 9, line 57 – col. 10, line 10 of Hubbard].

11. As to claim 11, Doyle as modified teaches if the service provider fails to complete its assigned task within a predetermined time, the corresponding provider manager communicates with the service provider, and informs the job management apparatus of the task status in response to the communication with the service provider [col. 6, line 65 – col. 7, line 15 of Doyle].

12. As to claim 12, Doyle as modified teaches the provider manager informs the service provider performing the task to terminate performance of the task in response to

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a signal received from said job management apparatus [col. 6, line 65 - col. 7, line 15 of Doyle].

13. As to claim 18, Doyle as modified teaches retrieving the batch job from the batch job database prior to the step of extracting at least one task [col. 19, lines 50 – 65 of Hubbard].

14. As to claim 19, Doyle as modified teaches delegating a plurality of tasks to the plurality of service providers to be performed in parallel [col. 14, line 57 – col. 15, line 5 of Hubbard].

15. As to claim 20, Doyle as modified teaches receiving a status report signal from the service provider performing the task, which updates the status of the task being performed [After the CALCULATE script line is executed, subsequent SubmitterTick messages cause a job status message to be returned; col. 9, lines 23 – 40 of Doyle].

16. As to claim 21, Doyle as modified teaches determining whether the batch job execution system is able to process the batch job and assigning additional service providers to perform tasks for the job management apparatus if it is determined that the batch job execution system is unable to process the job [col. 10, lines 46 – 58 of Doyle].

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17. As to claim 22, Doyle as modified teaches communicating with the service provider performing the task after a predetermined time [response to periodic incoming SubmitterTick message; col. 9, lines 8 – 25 of Doyle]; informing the job management apparatus of the tasks status [col. 9, lines 25 – 40 of Doyle]; and, the job management apparatus determining whether to re-assign the task or wait for task completion in response to the step of updating the task status [col. 6, line 65 – col. 7, line 15 of Doyle].

18. As to claim 23, Doyle as modified teaches terminating the step of performing the task in response to receiving a signal from the job management apparatus, prior to the step of completing the task [col. 6, line 65 - col. 7, line 15 of Doyle].

### ***Conclusion***

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### CONTACT INFORMATION

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768.


The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LBZ

Li B. Zhen  
Examiner  
Art Unit 2194



WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER